DETAILED ACTION

Status of Claims

1. Claims 10 and 11 are currently under examination, wherein claims 10 and 11 have been amended in applicant's amendment filed on March 22nd, 2010.

Status of Previous Rejections

2. The previous rejections of claims 10 and 11 under 35 U.S.C. 103(a) as stated in the Office action dated December 17, 2009 have been withdrawn in light of applicant's amendment filed on March 22nd, 2010. New grounds of rejections have been established as follows.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06-065647 A in view of JP 2003-268435 A and further in view of Ohmura et al. (US 5,045,404).

With respect to claims 10 and 11, JP ('647 A) discloses a cold rolled annealed steel sheet having a composition by wt.% (abstract) as shown in the Table below.

Elements	Instant Claims	JP ('647 A)	Overlapping Ranges
C	0.0003-0.003	≤0.003	0.0003-0.003
Si	≤0.01	≤0.1	≤0.01
Mn	≤0.1	0.05-0.4	0.05-0.1
P	≤0.02	≤0.05	≤0.02

S	0.005-0.01	≤0.05	0.005-0.01
N	0.0005-0.0025	≤0.004	0.0005-0.0025
Ti	0.015-0.07	0.02-0.1	0.02-0.07
Al	0.001-0.003	≤0.06	0.001-0.003
Nb	Not Claimed	0.002-0.04	
B	Not Added	0.0001-0.001	
La+Ce+Nd	0.002-0.02	Nd 0.0001-0.01 JP (‘435 A)	0.002-0.01
Fe+Impurities	Balance	Balance	

JP (‘647 A) does not limit the types of Ti and Al as claimed. However, it would have been obvious to one of ordinary skill in the art to use claimed acid soluble Ti and Al with an expectation of success, because JP (‘647 A) discloses the same utility of all types of Ti and Al. The content ranges of the elements of JP (‘647 A) in view of JP (‘435 A) overlap the claimed content ranges of the elements respectively. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05 I.

JP (‘647 A) discloses adding 0.0001-0.001 wt. % of boron to improve secondary workability (paragraph [0007]). The instant invention also discloses that boron is effective for preventing secondary work embrittlement (lines 25-36, page 11). However, as disclosed in the instant specification the boron is added only when a steel sheet is used for parts subjected to extreme drawing etc. (lines 25-36, page 11). Therefore, it would have been obvious to one of ordinary skill in the art that when the steel sheet of JP (‘647 A) is used for parts which are not subjected to extreme working, there would be no need to add any boron as instantly claimed.

JP (‘647 A) does not disclose the steel sheet includes La, Ce and Nd as claimed in the instant claim 10. JP (‘435 A) discloses adding 0.0001-0.01 wt. % of Nd to low-carbon thin steel sheets, which appear to have a similar composition as that of the low-carbon steel sheet of JP (‘647 A) (abstract). It would have been obvious to one of

ordinary skill in the art at the time the invention was made to add 0.0001-0.01 wt. % of Nd to the composition of JP ('647 A) as disclosed by JP ('435 A) in order to decompose the small amount of dissolved oxygen and TiO_n inclusion left in the steel melt after the Ti deoxidation as disclosed by JP ('435 A) (abstract).

JP ('647 A) in view of JP ('435 A) does not disclose adding La, Ce and Nd together to the steel sheet. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the Nd of JP ('435 A) with an inexpensive mischmetal comprising La, Ce and Nd in the steel sheet of JP ('647 A) in view of JP ('435 A) with an expectation of success, because Nd and the mischmetal are functionally equivalent in terms of providing rare earth elements in steel as disclosed by Ohmura et al. ('404) (col. 3, lines 10-19). See MPEP 2144.06.

JP ('647 A) in view of JP ('435 A) and further in view of Ohmura et al. ('404) does not disclose the structures and properties of the steel sheet as claimed in the instant claim 10. However, it has been held where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established; see *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977), MPEP 2112.01 [R-3] I. In the instant case, the claimed and JP ('647 A) in view of JP ('435 A) and further in view of Ohmura et al. ('404)'s steel sheets are identical or substantially identical in composition and are produced by identical or substantially identical processes, therefore a prima facie case of obviousness exists. The same complex oxides, the same oxysulfites, the same $Ti_4C_2S_4$, the same sizes of

the complex oxides, $Ti_4C_2S_4$, fine TiS and fine carbides, the same average grain size of recrystallized grains, the same aspect ratio (i.e. the claimed γ-value) of the recrystallized grain size and the same elongation would be expected in the steel sheet of JP ('647 A) in view of JP ('435 A) as in the claimed steel sheet.

With respect to the added limitation of the annealing temperature in the instant claim 10, it is a process limitation in a product claim. Even though the claim 10 is limited by and defined by the process, determination of patentability is based on the product itself. JP ('647 A) in view of JP ('435 A) discloses a steel sheet, which reasonably appears to be only slightly different than the respective claimed products in claim 10. A rejection based on section 103 of the statute is eminently fair and acceptable. See MPEP 2113.

Response to Arguments

4. The applicant's arguments filed on March 22nd, 2010 have been fully considered but they are not persuasive.

First, the applicant argues that JP ('647 A) requires two steps of cold rolling and annealing operations where the annealing temperatures must be 840-900°C while the instant invention only needs one step of cold rolling and annealing operation where the annealing temperature is 600-780°C. In response, see the reason for the rejection of the added limitation of the annealing temperature in the instant claim 10 above.

Second, the applicant argues that a reference in the IDS filed by the applicant on March 22nd, 2010 has shown that the steels of JP ('647 A) achieves high γ-values by using an annealing temperature of at least 840°C while the instantly claimed steels

achieves high γ-values at a much lower annealing temperature of 780°C. In response, the examiner notes that this is actually a support of the examiner's statement in the Office action dated December 17, 2009 that the same aspect ratio (i.e. the claimed γ-value) of the recrystallized grain size and the other structural and property features would be expected in the steel sheet of JP ('647 A) in view of JP ('435 A) as in the claimed steel sheet. The determination of patentability is based on the product itself rather than the process to make it.

Third, the applicant argues that JP ('647 A) does not teach adding La, Ce and Nd as instantly claimed and JP ('435 A) does not teach an annealing step and adding La, Ce and Nd to suppress fine TiS and carbides and to fix S as instantly claimed. In response, see the new grounds of rejections as discussed above. JP ('435 A) does not have to disclose an annealing step and the same purposes for adding Nd as asserted by the applicant.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Roy King/
Supervisory Patent Examiner, Art Unit 1793

WZ

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